

### REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. Claims 14, 27, 37, and 39 are currently being amended. No new matter has been added. Claims 1-13, 15-20, 28, and 35 were canceled previously. As a result, claims 14, 21-27, 29-34, and 36-41 are now pending.

#### **I. Claim Rejections under 35 U.S.C. 112**

*Claims 14, 21-27, 29-34, 36, 39, and 41*

On page 4, section 4 of the Office Action, claims 14, 21-27, 29-34, 36, 39, and 41 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The Examiner also states on page 4 of the Office Action that the “probe drive system comprising an arm is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure [sic].” On pages 4-5 of the Office Action, the Examiner further states:

As to claim 14 it is unclear as to exactly what applicant intends to claim .... It is unclear if applicant intends to claim the probe drive system as an element of the injection system. .... If the drive system is not required the arm of the drive system is also not required hence he [sic] probe cannot be connected to arm nor the valve mounted on the arm. The probe drive system comprising an arm is essential to the invention as clearly illustrated by the disclosure and previous versions of the claims.

Applicant respectfully traverses the rejection. First, it is not necessary that the arm be part of a probe drive system. Nowhere does the disclosure of the present application state that the arm must be part of a probe drive system. Thus, the Examiner’s statement that “if the drive system is not required the arm is also not required” is not supported by the disclosure of the present application or by the knowledge of those skilled in the art. To further prosecution, Applicant has amended claim 14 to clearly claim an arm and removed any reference to a probe drive system from claim 14.

Second, the probe drive system is not essential to the practice of the invention. Paragraph [0022] of the present application states that the “probe drive system 24 positions the probe 22 over a selected sample container 18. The Z drive motor 42 lowers the probe into the selected liquid sample.” No statement indicating any required movement is included in the disclosure of the present application. Movement of the probe using the probe drive system is presented as an exemplary embodiment. Instead of moving the probe, the samples themselves may be positioned. Thus, the probe drive system is not essential to the practice of the invention.

Third, claim 14 is directed to an element of a liquid handler, specifically a liquid chromatography sample injection system, and not to a liquid handler. Applicant is not required to claim elements of a liquid handler in a claim to a liquid chromatography sample injection system that may be utilized in other machines.

Fourth, the probe drive system is enabled both by the disclosure of the present application and by the disclosure of U.S. Patent No. 4,422,151, incorporated by reference at paragraph [0017] of the present application. Please see paragraphs [0014]-[0017] of the present application and Col. 6, line 61 – Col. 15, line 52 of U.S. Patent No. 4,422,151. Extensive description of the probed drive system is provided. Therefore, for at least these reasons, Applicant requests withdrawal of the rejection of claims 14, 21-27, 29-34, 36, 39, and 41 under 35 U.S.C. 112, first paragraph.

*Claim 31*

On page 5, section 6, claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner states on page 5 of the Office Action that “‘a sample analyzer’ is not claimed as element [sic] of the invention as any interaction [sic] with an unclaimed element is not considered further limiting.” Applicant respectfully disagrees that an interaction with an unclaimed element is not considered further limiting because such an interaction can effect a structural limitation on a claimed element without requiring a claim to an entire machine that incorporates a system. However, to advance prosecution, Applicant has amended claim 31 to depend from claim 40, which includes the sample analyzer as a claimed

element. As a result, Applicant requests withdrawal of the rejection of claim 31 under 35 U.S.C. 112, second paragraph.

## II. Claim Rejections under 35 U.S.C. 102

On page 6, section 8, claims 14, 21-22, 26, 29, 31, 32, 36, and 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 3,858,450 to Jones (Jones). Applicant respectfully traverses this rejection because Jones fails to teach all of the limitations of independent claims 14 and 38.

On pages 6-8 of the Office Action, the Examiner discusses Jones and its relationship to some elements of Claim 14. However, the Examiner fails to show any disclosure or teaching in Jones that corresponds with the controller as recited in claims 14 and 38. Claim 14, with emphasis added through underlining, recites:

a controller operably coupled to the probe pump, the injector valve, and the pump valve, wherein the controller alternates the injector valve between a loading position and an injection position and alternates the pump valve between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample.

Claim 38 recites:

placing a pump valve into a rinse position automatically using a controller after forcing the liquid sample toward the sample analyzer.

Jones describes a "sampling, mixing and metering apparatus" (Col. 1, lines 67-68) including a "sampling head 12 [that] includes a valve mechanism 16 defined by first and second valve blocks 18 and 20 respectively, linearly movable (slidable) relative to each other between two valve positions, namely, a sampling position and a delivery position" (Col. 1, lines 1-3). Jones further describes "a sample pump 36 for withdrawing some of a liquid sample from the cup 24." (Col. 4, lines 20-23). Jones still further describes:

scavenge vacuum device 54 [that] extracts or evacuates most of the sample left in passageway 90 (and the probe 92 connected thereto) ... Also, the vacuum acting through the conduit 93 of pump 36 cooperates with the pressure supplied through valve 38 to pump 36 to return the same to its extracting position.

(Col. 8, lines 32-39). Thus, Jones describes a valve mechanism 16 that is movable between two positions, neither of which is to rinse the probe. Jones further describes a pump 36 that is movable to aspirate and to dispense a sample, but not to rinse the probe. Jones still further describes a vacuum device that extracts or evacuates, but does not rinse. However, Jones fails to teach, suggest, or describe a controller alternating a pump valve "between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample" as required by claim 14. Jones similarly fails to teach, suggest, or describe "placing a pump valve into a rinse position automatically using a controller after forcing the liquid sample toward the sample analyzer" as required by Claim 38.

In the over two pages of discussion of Jones, the Examiner fails to mention any disclosure in Jones which in anyway teaches a rinse position for any valve or a controller which controls the positioning of a valve to perform a rinse function. On page 3 of the Office Action, the Examiner states:

While Jones may reference the device is intended for mixing liquids, it is not precluded from the device being used in other processes. One can refer to the source container (40) as one chooses and the liquid therein can provide a "rinsing functions as it causes liquids, particles, residue, or any other material to mixed [sic] and/or removed as it passes through the system. .... The device of Jones comprises all of the structural components as required in the claims. The manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations.

Applicant respectfully disagrees. The controller is a structural element of claim 14. As such, the operations performed by the controller do differentiate the claimed apparatus.

Additionally, the argument is completely inapplicable to claim 38, which is directed to a method of injecting a sample into a sample analyzer of a liquid chromatography sample injection system. Jones fails to describe “placing a pump valve into a rinse position automatically using a controller after forcing the liquid sample toward the sample analyzer” as required by Claim 38. The Examiner also fails to point to any such teaching in Jones.

Therefore, Jones fails to disclose, suggest, or teach all of the limitations of Claims 14 and 38. An anticipation rejection cannot properly be maintained where the reference used in the rejection does not disclose all of the recited claim elements. Applicant respectfully traverses any argument posed by Examiner relative to Claims 21-27, 29-34, 36, and 39-41, which depend from claim 14, as they are allowable for at least the reasons outlined above relative to Claim 14. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 14, 21-27, 29-34, 36, and 38-41.

### **III. Claim Rejections under 35 U.S.C. 103**

#### *Claims 30, 33, and 34*

On page 8, section 10, claims 30, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones. On page 8 of the Office Action, the Examiner states that “it would have been obvious to one of ordinary skill in the art to recognize that the connection length ... may have been any suitable length ....” Applicant respectfully disagrees. Irrespective of whether or not the connection length may have any suitable length, the structural arrangement associated with achieving lengths as recited in claims 29 and 30 is not obvious.

On pages 8 and 9 of the Office Action, the Examiner states:

it would have been obvious to one of ordinary skill in the art ... to recognize the number of ports may be limited as so desired by the operator. If additional testing is required or no testing at all, one may choose to add exclude ports from the valve and employ the device for simply mixing or fluid transfer from one container to another.

Applicant respectfully disagrees. Claim 14 is not directed to a device for simply mixing or fluid transfer from one container to another. Thus, irrespective of whether or not the number of ports may be selected by the operator, the structural arrangement associated with the number ports that provide the limitations as recited in claims 33 and 34 is not obvious.

Additionally, as discussed in Section II. above, the Examiner has failed to demonstrate that Jones discloses, teaches, or suggests all of the claim limitations as recited in Claim 14 from which Claims 30, 33, and 34 depend. Jones fails to teach at least the controller as required by Claim 14. An obviousness rejection cannot be properly maintained where the reference used in the rejection does not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 30, 33, and 34, which depend from Claim 14.

*Claims 22 and 33*

On page 9, section 11, claims 23 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones as applied to claim 14 above, and further in view of U.S. Patent No. 4,957,009 to Nohl et al. (Nohl). Applicant respectfully traverses this rejection. As discussed in Section II. above, Jones fails to teach at least the controller which controls the pump valve as required by claim 14. Nohl fails to remedy this failure.

Nohl describes "a pushloop liquid sampling method." (Abstract). Nohl further describes:

First, as shown in FIG. 2A, three way valve 42 is switched so as to connect the reservoir 44 of flush solvent to syringe 32. Plunger 33 of syringe 32 is withdrawn so as to pull a small amount of flush solvent, typically 3  $\mu$ L, into syringe 32. The amount of flush solvent pulled by the plunger 33 must be enough to account for backlash in the drive mechanism 45 for syringe 32.

Second, in FIG. 2B, three way valve 42 is switched so syringe 32 is connected to transport tubing 46. Six port valve 30 is in the "INJECT" position. The three-way valve 42 is closed so the flush reservoir 44 is no longer connected to syringe 32. The plunger 33 is withdrawn so as to pull a small air bubble 48 into needle 50. Then sample vial 52 is lifted into the sample tower 34.

Third, in FIG. 2C, the desired amount of sample 54 (such as 30  $\mu$ L for a 10  $\mu$ L injection) is drawn out of sample vial 52 by further withdrawing plunger 33. Sample 54 is preceded by air bubble 48.

(Col. 18, lines 24-25). Thus, Nohl aspirates a flush solvent and in the next step aspirates the sample so that the solvent and the sample are separated by an air bubble. The sample is then dispensed.

Therefore, Nohl fails to teach at least a controller alternating a pump valve "between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample" as required by Claim 14. As a result, neither Jones nor Nohl disclose, suggest, or teach all of the limitations of Claim 14. An obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 23 and 33, which depend from Claim 14.

#### *Claims 23-25*

On page 9, section 12, claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones as applied to claim 14 above, and further in view of U.S. Patent No. 4,942,018 to Munk (Munk). Applicant respectfully traverses this rejection. As discussed in Section II. above, Jones fails to teach at least the controller which controls the pump valve as required by claim 14. Munk fails to remedy this failure.

Munk describes "[s]olvent composition gradients in high performance liquid chromatography." (Abstract). Munk further states:

Solvent A 24 can be metered into the bed by the graduated syringe 42. .... Because the system is closed except for the fill and drain ports ..., the amount of solvent A 24 introduced will displace an equal amount of solvent B 30 from the drain port 40b (assuming there is no change in volume upon mixing the two solvents).

(Col. 6, lines 38-47, emphasis added through underlining). Thus, Munk teaches use of a valve to control mixing of solvents.

Munk fails to teach at least a controller alternating a pump valve “between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample” as required by Claim 14. As a result, neither Jones nor Munk disclose, suggest, or teach all of the limitations of Claim 14. An obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 23-25 which depend from Claim 14.

*Claims 27 and 28*

On page 10, section 13, claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones as applied to claim 14 above, and further in view of U.S. Patent No. 6,656,724 to Heimberg et al. (Heimberg). Claim 28 was cancelled in the previous reply again rendering this rejection moot. Applicant respectfully traverses the rejection of Claim 27. As discussed in Section II. above, Jones fails to teach at least the controller which controls the pump valve as required by claim 14. Heimberg fails to remedy this failure.

Heimberg describes “a pipette apparatus.” (Abstract). Heimberg further describes:

pipette tip is connected via a thin tube 21 to two pumps 22, 23. The pump 22 is a syringe pump for precise microdispensing (1  $\mu$ l) whereas the second pump 23 is a wash pump having a greater thruput (e.g.  $\geq 100$  ml/min) than the syringe pump 22 and is used for washing the pipette tip 20.

(Col. 3, lines 20-25). Heimberg makes no mention whatsoever of a valve. Therefore, Heimberg fails to teach at least a controller alternating a pump valve “between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample” as required by Claim 14. As a result, neither Jones nor Heimberg disclose, suggest, or teach all of the limitations of Claim 14. An obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests



withdrawal of the rejection of Claim 27, which depends from Claim 14.

*Claims 14, 26-28, 31, 32, and 36*

On page 13, section 15, claims 14, 26-28, 31-32, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2003/0099573 to Tseung et al. (Tseung). Applicant respectfully traverses this rejection. On pages 10-11 of the Office Action, the Examiner discusses Tseung and its relationship to various elements of Claim 14. However, the Examiner fails to show any disclosure or teaching in Tseung that corresponds with a controller alternating a pump valve as required in Claim 14.

Tseung describes an “automated staining system.” (Abstract). Tseung states that the “bulk fluid dispensing tube 36 is capable of dispensing buffer solution from a buffer supply (not shown) delivered by supply line 41 or reagents delivered via supply lines 42 and 43 from internal bulk reagent supplies (not shown), as selected by a distribution valve 44.” (Paragraph [0031]). Tseung shows elements 56 and 57 in FIG. 4, but these elements are not mentioned in the specification. Tseung makes no other mention of a valve. Therefore, Tseung fails to teach, suggest, or describe at least a controller alternating a pump valve “between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample” as required by Claim 14.

On pages 3 and 13 of the Office Action, the Examiner states:

While the specification of Tseung may not specify the elements 56 and 57, one of ordinary skill in the art would clearly recognize the elements are valves each connecting three conduits. As such, it would have been obvious to recognize the valve may be of conventional three-way type.

Applicant respectfully disagrees. First, Applicant disagrees that one of ordinary skill in the art would clearly recognize the elements are valves given that Tseung provides no description whatsoever of elements 56 and 57. Not even a name for elements 56 and 57 is provided. Even if elements 56 and 57 are valves, there is no discussion of how elements 56 and 57 are utilized, and

thus, no disclosure whatsoever of a controller alternating a pump valve “between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample” as required by Claim 14.

As a result, Tseung fails to disclose, suggest, or teach all of the limitations of Claim 14. An obviousness rejection cannot be properly maintained where the reference used in the rejection does not disclose all of the recited claim elements. Applicant respectfully traverses any arguments posed by Examiner relative to Claims 26-28, 31-32, and 36, which depend from Claim 14, as they are allowable for at least the reasons outlined above relative to Claim 14. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 14, 26-28, 31-32, and 36.

#### **IV. No Rejection of Claim 37**

The Examiner fails to either reject Claim 37 or to indicate allowance of Claim 37. Applicant believes Claim 37 is in condition for allowance. As a result, Applicant requests an indication of allowance of Claim 37.

Applicant believes that the present application is in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-2350. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid

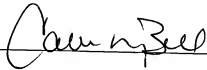
amount to Deposit Account No. 50-2350. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 50-2350.

Respectfully submitted,

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By

A handwritten signature in cursive script, appearing to read 'Callie M. Bell', written over a horizontal line.

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